REMARKS

This application has been amended in a manner that is believed to place it in condition for allowance at the time of the next Official Action.

Claims 7, 10, 34-35, and 64 have been amended. Claims 8-9 and 65 have been cancelled. Independent claim 7 has been amended to recite a peptide compound comprising a sequence of at least 8 consecutive amino acids, the peptide is able to induce a specific T-cell immune response, the amino acid sequence being selected from the group consisting of SLFEGIDIY (SEQ ID No 1) and SLFEGIDIYT (SEQ ID No 2). Support for these claims may eb found in original claim 9.

Claims 34-35 have been amended similarly amended.

Withdrawn claims 1-6, 12, 16-18, 22-29, 37-38, and 41-63 have been cancelled without prejudice. These claims were directed to a non-elected invention and may become the subject of a divisional application filed during the pendency of this application.

In the outstanding Official Action, claims 11, and 34-35 were rejected under 35 USC §112, second paragraph. Claims 11, and 34-35 have been amended in a

manned to more particularly point out and distinctly claim the present invention.

As to the term "chemical group", applicants submit that chemical groups able to protect peptides against proteases are well known to one of ordinary skill in the art of synthesizing peptide. At the time the present application was filed(April 1998), it was well known that one could design a stable protease-resistant peptide by avoiding proteolytic peptide degradation. Approaches based on modifying the structure of a peptide with chemical groups to inhibit proteolytic degradation exist and have been applied to MHC class I-restricted or class II-restricted antigenic peptides. Indeed, one of ordinary skill in the art could have obtained this information from one of the following publications:

> Powell et al., 1993, "Peptide stability in drug development, effect of single amino acid substitution and glycolsylation on peptide reactivity in human serum", Pharm. Res. 10:1268.
>
> Mayer et al., 1995, "Binding properties and protease stability of recomniant human nidogen", Eur. J. Biochem. 227:681
>
> Maillere et al, 1995,"Fine chemical modifications at N- and C- termini enhance peptide presentation to T cells by increasing the lifespan of both free and MHC-complexed peptides", Mol. Immunol. 32:1377.

Thus, it is believed that claims 11, 34, and 35 are definite to one of ordinary skill in the art. Therefore, withdrawal of the rejection is respectfully solicited.

In the outstanding Official Action, claims 7-10, 11, 13-14, 19-21, 30-31 and 64-65 were rejected under 35 USC §112, first paragraph.

The claims have been narrowed to traverse the pending rejection, without prejudice. The broader subject matter may be the subject of a divisional application filed during the pendency of the application. The recitations were previously found in claim 9.

Since the claim 9 recitations were not objected to, it follows that the present amendment overcomes the first paragraph rejection. Accordingly, withdrawal of this rejection is solicited.

In the outstanding Official Action, claims 7-10, 13, 19, 21, 30, 34 and 35 were rejected under 35 USC §102(b) as allegedly being anticipated by Dragon et al.

Dragon et al. fail to disclose or suggest the claimed invention. Dragon et al. teach the entire wild type sequence of human hsp70. However, the recited peptide of the present invention is directed to a peptide amino acid sequence with a mutation that stands in contrast to

the wild type amino acid sequence of hsp70. Accordingly, applicant respectfully disagrees with the Official Action's position that Dragon et al. cites a peptide that is identical to the peptide of the present invention.

Moreover, as Dragon et al fails to provide any suggestion or motivation that an amino acid sequence differing from the wild type hsp70 by only one amino acid could induce an effective T-cell response against tumors, it is believed that Dragon et al fail to render obvious the claimed invention.

In fact, applicant's note that the present invention relates to mutated immunogenic peptides from hsp70 that possess different characteristics from wild type peptides (see example 15 of the present specification). Thus, it is believed that the different characteristics exhibited by the Dragon et al peptides would lead one skilled in the art away from the claimed invention.

One of ordinary skill in the art would not be able to randomly choose some immunogenic peptidic sequence from a given protein. One of ordinary skill in the art would require some sort of motivation or suggestion to do so. Moreover, it would require some form of experimentation to define which peptides could be immunogenic. As Dragon et al fail to disclose or even suggest modifying their

disclosed peptides in such manner, it is believed that the present invention is not anticipated nor render obvious by Dragon et al.

In the outstanding Official Action, claims 7-10, 13, 19-21, 30-31, 34-35, and 64-65 were rejected under 35 USC §103(a) as allegedly being obvious in view of Dragon et al. and further in view of Prakken et al. and Costa et al.

Applicants again respectfully disagree.

As noted, Dragon et al. teaches the entire wild type sequence of human hsp70> However, the claimed invention is directed to a peptide amino acid sequence with a mutation distinct from the wild type amino acid sequence of hsp70. The present inventors have found that peptides containing an amino acid sequence differing from the wild type hsp70 by only one amino acid can induce an effective T-cell response against tumors in humans.

However, none of the cited publications disclose or even suggest this approach.

Indeed, applicants believe that the obviousness argument fails as one of ordinary skill in the art would still need some suggestion or motivation to combine and modify the teachings of the cited publications in a way to obtain the claimed invention. Moreover, as noted above, one

of ordinary skill in the art would then still have to conduct the necessary experimentation.

In fact, in light of the distinct characteristics exhibited by the peptides of the claimed invention relative to those of the cited publications, it is believed there is no motivation for one skilled in the art to even start with wild type peptides. Applicants believe that the inventors have unexpectedly found that peptides containing an amino acid sequence differing from wild type human hsp70 by only one amino acid could induce an effective T-cell response against tumors in humans.

Accordingly, the Prakken et al. and Costa et al. publications fail to remedy the deficiencies of Dragon et al. As such, applicants respectfully traverse the rejection.

In view of the present amendment and the foregoing remarks, therefore, it is respectfully believed that this application is now in condition for allowance. Allowance and passage to issue on that basis are accordingly respectfully requested.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any

additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

YOUNG & THOMPSON

Philip A. DuBois., Reg.No.50,696
Agent for Applicants
745 South 23rd Street
Arlington, VA 22202
Telephone (703) 521-2297
Telefax (703) 685-0573
(703) 979-4709

PD/mjr